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Inka Khipus, Thread Wrappings and Subject Markers

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Abstract

This work aims to contribute to our current understanding of how information was organized in khipus, Andean colourful knotted cords used as writing. If the idea that khipu signs could work as a flow chart was common in the last two decades, it is not until the notion of *kayte* as subject marker was elaborated by Sabine Hyland on the basis of Julio C. Tello's notes that the theory could be discussed on more empirical grounds. So far, the term “kayte” applied to needlework bundles, pompons or tufts attached to the beginning of the primary cord. In this work, the notion will be expanded to thread wrapped segments on Inka-style khipus. To this point, the discussion on the presence of thread wrappings on khipus has been predominantly relegated to Wari khipus, khipus understood to be outside the Inka standard, or post-Inka idiosyncratic “canuto” khipus. Here, thread wrapping present on the primary cord of Inka style khipus will be discussed as a possible specific type of kayte – or subject marker. Consulting literature on Andean thread wrapping technology, thread wrapped kaytes are proposed to be indicators of content related to personhood or territory.

Keywords: Khipus, quipus, thread wrapping, kayte, technological transmission

Resúmenes

Este trabajo pretende contribuir a nuestra comprensión actual de cómo se organizaba la información en los quipus, una tecnología andina de cuerdas coloradas y anudadas utilizada como escritura. Si la idea de que los signos en el quipu podrían funcionar como un diagrama de flujo era común en las últimas dos décadas, no es hasta que Sabine Hyland, a partir de las notas de Julio C. Tello, elaboró la noción de “kayte” como

marcador de sujeto de que la teoría podía discutirse sobre bases más empíricas. Hasta aquel momento, la palabra “kayte” se aplicaba a mechones de costura, o pompones atados al inicio del cordón primario. En este trabajo, la noción de *kayte* o marcador semántico se ampliará para incluir cuerdas envueltas en quipus de estilo Inca. Hasta este punto, la discusión sobre la presencia de cuerdas envueltas en los khipus se ha relegado predominantemente a los quipus Huari, quipus entendidos como fuera del estándar Inca, o quipus idiosincráticos “canuto” post-Incaicos. Aquí se considerarán las cuerdas envueltas presente en el cordón principal de los quipus de estilo Inca como un posible tipo específico de *kayte* o marcador de sujeto. En comparación con la literatura sobre la tecnología andina de cuerdas envueltas, se propone que los *kaytes* de cuerdas envueltas sean indicadores de contenido relacionado con la personalidad o el territorio.

Palabras clave: Khipus, quipus, thread wrapping, kayte, transmisión tecnológica



Recent research on how knowledge was organized in Inka khipus

Khipus are a three dimensional and colourful knotted cord technology for record keeping used in the Andes. Early modern written testimonies report that khipus were used by the Inkas for a variety of purposes including monitoring census, organizing time through calendars, accounting for goods and labour contributions, recounting information about lineage, and

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narrating historical events. Numbers were mostly recorded through a decimal-positional system of knots (Hyland 2024; Locke 1912). As far as qualitative information is concerned, scholars are still trying to understand how it was stored through this medium. There are different ways of addressing this issue, one of which is through morphological analysis and the identification of morphological types. The process of identifying morphological types facilitates the distinction between the khipus that were manufactured according to a well-known standard, from those that might have been used on a more local level or following individual criteria – an issue already raised by Kylie Quave during the IV Jornadas Internacionales sobre Textiles Precolombinos (Quave 2007). The possibility of identifying khipu types is invaluable to understand the topic of the khipu, that is, the general subject of the information it records, also when attempting to interpret standardized Inka khipus. For example, when a khipu displays morphological features that are reminiscent of a calendrical structure, scholars take this feature to be an indicator (or, in Peircean semiotics: a diagrammatic icon) of the content of the khipu, namely: calendrical information (see for instance Urton 2017). However, if these attempts at identifying khipu topics through the object's morphology and structure are deductively valid, they have showed to be insufficient so far to identify the topics of the numerous khipus known to date¹. One question remains unanswered: was there an emic strategy to make the khipu content type identifiable to the *khipucamayoc* (or “the khipu animator”, who was in charge of khipus)? Is the issue of “ethnocategories” initially raised by John V. Murra (1975) applicable not only to the information registered within a single khipu but also to a khipu as a whole? If on one hand some believe that khipus could not function as autonomous media (namely, that they are mnemonic devices, or that they required secondary or accessory media to be intelligible)² on the other, an opposite theory has been proposed, which is currently the most widespread and shared within the scholarly khipu community. The latter hypothesis sees khipus as autonomous devices, with their content accessible in full only through the khipu. A question remained unanswered: do khipus have indicators of their subject? And if so, how do they distinguish between subjects? How extended was their intelligibility? Which semiotic principles regulated the functioning of these indicators, and do they influence the extent



Figure 1. Remarkably elaborate primary cord of khipu V A 16125b, Ethnologisches Museum, Staatliche Museen zu Berlin. Photo Lucrezia Milillo.

to which we can access the information registered in the khipu? So far, the primary cord, the thicker cord to which pendants are attached, was believed to be an indicator of the khipu's topic. This is firstly because of its inherently primary nature in the structure of a khipu, secondly, due to the fact that many (but not all) primary cords present a particularly elaborate structure (see Figure 1), and finally because it is clearly visible when a khipu is stored or carried in its coiled position (Quilter and Urton 2002: 33; Urton 2003: 19-20; 2019).

Another structural element that is currently understood as a subject marker are needlework bundles attached to an extremity of the primary cord and sometimes separating cord groups along the primary cord.

Awareness about the importance of these knobs was originally raised by the anthropologist and ethnohistorian Frank Salomon who noticed their considerable presence on nineteenth century khipus currently still hold by the *comunidad campesina* of San Andrés de Tupicocha (Salomon 2002, see Figure 2). Salomon reports that they were called *Pachacamanta* (Quechua for “related to a hundred”) and for this reason they might have been related to the Inka decimal organization of tribute payers (Salomon 2004).

Since these bundles are also present on archaeological khipus, it has been proposed that they could have had a similar function also in the past, especially because of their name which is related to the semantic realm of accounting (Urton 2003: 5).

¹ For a census of the khipus known to date see Medrano 2021.

² However, even if considering this hypothesis valid, there still is the possibility that it is specific of a particular khipu type.



Figure 2. *Pachacamanta* on the khipu of the parcialidad Ca-carima in Tupicocha, 2022. Photo Lucrezia Milillo.

Since tufts, bundles and sometimes even dolls are the only element present along the length of the 267 single-cord khipus of Rapaz (that is, there are no knots by themselves on Rapaz khipus, they always incorporate something), it was argued that qualitative information was recorded through these items (Salomon 2018; Salomon et al. 2006). The anthropologist and khipu expert Sabine Hyland has recently convincingly argued that the Rapaz khipus were syncretic religious calendars and used attached items to indicate the yearly festivals (Hyland 2021).

Mariano Eduardo de Rivero, a 19th century Peruvian naturalist wrote in *Peruvian Antiquities* that khipu had «certain signs at the commencement of the mother thread, or base cord, which had a meaning intelligible to them

only» that were used to discern specific events of different districts (Rivero and Tschudi 1853, 111).

The most recent breakthrough to understand khipu typologies and their content based on needlework bundles is Hyland's article on subject markers (2020), which gathered first evidence that khipus worked as a flow-chart. It is largely agreed today that khipu signs (such as fibre type, cord ply direction, attachment type, colour) did not work in a one to one relation to the meaning they would represent, that is, there is not one exclusive meaning associated with a khipu sign. Rather, khipus would encode information through hierarchical levels of significance. According to this framework, the topic of the khipu is determined by a key indicator so that the value is attributed to the various khipu signs. If the key indicator – the subject marker – is the *kayte*³, then the same khipu features can represent different meanings depending on the subject indicator. Hyland's research opens new doors to determine khipu content through an emic point of view, and not by deduction from its knot or cords distribution, or the khipu's general morphology.

During my doctoral research on khipu “oddities”, I studied khipus in various ethnographic museums in Europe. Some Inka style khipus presented a thread wrappings on the primary cord. The aim of this contribution is to draw attention to elements such as thread wrappings on Inka style khipus. This must be taken into consideration when working towards the interpretation of the qualitative content of a khipu. I will argue that thread wrappings on primary cords of Inka style khipus can be considered as a very specific form of *kayte* associated with intelligible notions of power, personhood, identity and territoriality. In order to do so, I will review the long technological tradition of thread wrapping in the Andes and its relation to the khipu semiotic system.

The Andean thread wrapping technological tradition

Thread wrapping in the archaeological context

One of the most insightful studies into the possible meanings of wrapped cords, their patterns and related wrapped items is Jeffrey Splitstoser's article on the wrapped batons from Cerrillos dating back to 350–200 BCE (Splitstoser 2014).

³ In this work, the spelling “kayte” is preferred over “caytu” (Anonymous 1586) or “ccaytu” (González Holguín 1608, 57). In these early dictionaries the word is translated as “*hebra de hilo*” (“tip of a thread”). Since this is not the meaning intended for this publication, the spelling *kayte* in accordance to the meaning of the word presented in Hyland (2020) who cited Julio C. Tello ethnographic testimony is preferred.

Splitstoser argues that the sequences of colour wrappings on these Cerrillos findings «might be an early manifestation of a uniquely Andean, fibre-based system that was used to record, process, and broadcast information» (Splitstoser 2014: 14). In support of this, he presents various examples of archaeological and ethnographical analogies, which provide the foundation for interpreting the cultural roots of the practice of wrapping khipu cords. The evidence of banded and wrapped sticks he reports from the archaeological record is not limited to physical objects, but also includes iconographical examples. Such evidence is related to different but interrelated semantic realms: the first realm of meaning is power, as in the case of the Staff God depicted with banded staffs (Cordy-Collins 1999: 133), and presumably also in the case of the miniature figure with elaborate head-dress holding a proportioned baton-size wrapped stick (The Museum of Fine Arts).

Another semantic realm associated with wrapped sticks includes concepts of agency and personhood, as in the case of the famous so-called “signal staffs” portrayed by Reiss and Stübel associated with mummy bundles in burials sites of the Ancón necropolis, (Reiss and Stübel 1880) or still associated to mummy bundles in the Ethnological Museum of Berlin (Staatliche Museen zu Berlin).

Splitstoser’s argument considers wrapped batons and cords as «political devices associated at the very least with territory and identity» (Splitstoser 2014: 79). As such, wrapped staff itself can convey predictive information about the identity of the deceased person close to which they are placed, regulated by the Peircean categories of symbol and/or icon. That is, the wrapped signal staffs may convey adjectives or names of people, toponyms, or affiliation qualities.

The first khipus presenting thread wrapped cords are also the earliest khipus universally recognized by the scholarly community. These were produced by the Wari culture (6th century AD - 10th century AD) and are generally smaller than Inka khipus. They also used knots probably according to a base ten system (Splitstoser 2020).

Even though the cultural dynamic of the acquirement of khipu technology is still unclear, there is general recognition that Wari khipus are the predecessors of Inka khipus.

Wari khipus present thread wrappings mostly on the

upper part of pendant or subsidiary cords⁴, and occasionally at the beginning of the primary cord.

These khipus show morphological traits that led scholars to think they had a certain degree of standardization which made it possible for the Wari to use them for their imperial accountability (Splitstoser 2020). However, it was suggested that, given the complexity and variety of colours of Wari khipus, they were used for various functions outside of that of accounting (Splitstoser 2021).

Thread wrapping in the ethnographic context

To conceptualize how complex could be the information encoded in wrapped khipu segments, one should look at an interesting artifact type from the ethnographic record, which has already been discussed in relation to khipus by other authors (Clindaniel 2018; Splitstoser 2014). *Musa warañas* are wooden rods wrapped in colourful threads that operate as models for colour combinations used to weave a particular garment. They are instruments utilized for planning warp-faced cloth, one of the most complex cloths produced in the Andes.

According to Arnold and Espejo’s work, still in much more recent times garments could convey information about family lines and provenience (Arnold and Espejo 2012) (which are realms of meanings related to place and identity). A similar ethnographic example documenting the use of wrapped rods for tracking weaving colour combinations can be found on the opposite side of the Andean range: in the Quero community in Ecuador (Rowe, Miller, and Meisch 2009).

However, a huge temporal hiatus separates the archaeological examples mentioned above from the ethnographic ones. How can these cases help us understand thread wrapping in Andean khipus? And more specifically: is thread wrapping a technological practice that was meaningful for of Inka khipus too?

Thread wrapping in early modern chronicles

Miguel Cabello Valboa was a Spanish priest, who after having collected oral histories of the natives, wrote extensively about the history of the Andes and the encounter with the Spaniards. His work includes a description of the events surrounding the death of Huayna Capac (1524). Before dying in Quito, Huayna Capac ordered to record his testament «as it was usually done among

4 Respectively: cords attached to the primary (horizontal) cord and cords attached to pendant cords or to other subsidiaries.

them. On a long stick (in the way of the Caduceus)⁵ they put stripes of different colours where his last will was recorded» (Cabello Valboa 1951, 393). What is even more relevant to the subject of this contribution is the relation between the banded stick and the khipu record keeping tradition, because the staff «was given to the khipukamayuk (that served the role that scribe or secretary) and [with this staff, the Inka] through his executor, appointed» some specific people of high rank. The term «baculo» used by the chronicler is here translated as “Caduceus”, but it could as well be translated either as Rod of Asclepius and Caduceus, or as pastoral staff. If the latter refers to the sphere of power, the first two are both sticks with serpents coiling around them. This makes this striped staff possibly related either to the practice of wrapping or to the realm of power. In any case, the stick mentioned in this chronicle is not only related to funerary practice as for the signal staffs found with mummy bundles, but to khipu-making itself. Indeed, what is interesting to notice is that the colourful thread wrapped staffs are said to be used to encode qualitative information (names of people) that were later “poured down”, systematically organized and, we might say, *waraqaña*⁶ on a khipu by a khipukamayuk.

The Late Horizon missing link?

Recent archaeological findings confirm the hypothesis that wrapped sticks served as pattern organizers for khipu-makers. In his PhD dissertation, Jon Clindaniel uses the literature that has been mentioned so far to discuss an incredible finding: during the 2013-14 archaeological excavation at Inkawasi storehouse, six wrapped batons were found together with pre-made khipu cords tied together in a small bundle. Pairs of colours on the wrapped sticks, correspond to colour patterns on the adjacent khipu cords. Clindaniel comments: «it appears that instead of wrapping thread around the upper portions of pendant cords as the Wari did to (presumably) record information on their khipus, the Inka khipukamayuks wrapped thread around sticks» (Clindaniel 2018, 70).

Indeed, it is still unclear what happened to the thread wrappings characterizing the precursors of the Inka khipus. Despite the origin of Inka khipus can be intuitively traced back to the Wari technology of cord recording

(Urton 2014), the dynamics of this cultural transmission is still unclear and lacks archaeological evidence. Clindaniel's identification of the relevance of finding wrapped sticks associated to khipu cords is an initial invaluable step forward for understanding both the Inka khipu making process and the dynamics of technological transformation of the khipu as a semiotic medium.

Meaningful thread wrappings on Inka khipus

It is plausible that thread wrappings had been pulled out of khipu technology by using external wrapped prompts to organize qualitative information for optimizing the khipu-making process during Inka times, as suggested by Clindaniel's discovery. The feature that is mostly used to discriminate Inka khipus from Wari khipus is indeed thread wrapping: a typical property of the second-mentioned. This remains statistically indisputable and theoretically true, and it is not in the aims of this work to argue against it. However, there still are few Inka style khipus that present wrapped segments. This makes thread wrapping a property not exclusive to Wari khipus or post-Inka 'canuto' khipus. It raises the question of whether there was any conventional semantic relation between thread wrappings on Inka khipus and those on their Wari predecessors. In fact, there are some examples of Inka-style khipus that present thread wrappings along the primary cord. Sometimes, the thread wrapping appears on one extremity of the primary cord, in other cases it is also present as a key feature of a bundle attached to one extremity of the primary cord, while on other occasions, threads are wrapped on various intervals of the primary cord (see list in Supplemental Materials). Considering the prominent nature of the primary cord and its intrinsic “title-like” position especially when the khipu is coiled for storage, it is plausible that these thread wrappings encode qualitative information introducing the content of that khipu's cords. This interpretation is particularly feasible for thread wrappings that occur at the very beginning of a primary cord, where the kayte is usually located.

Considering thread wrapping a meaningful technology for recording qualitative information as proposed by Splitstoaser (2014) and taking into account the position of the thread wrappings in Inka style khipus, it is

⁵ «a manera de baculo»

⁶ Term used in the realm of meaning of weaving to indicate the process of copying down a weaving pattern. Literally «pouring down like water» (Arnold and de Dios Yapita 2006, 124)

possible that thread wrappings on primary cords were used as subject markers, like kaytes, of these khipus when at the very beginning of the primary cord, or as qualitative indicators for the content of different sections of the khipu. One possible inference is that thread wrappings were used on Inka khipus as specific subject markers possibly related to personhood, place and power, specifying the people or the territory the information contained in the khipu is related to, in continuity with the type of information that is believed to be recorded in the other Andean wrapped technologies mentioned in this work.

In order to test this hypothesis, there are two lines of work to pursue. First, there is the need to expand our current knowledge on presence, materials and morphology of thread wrapping in Inka style khipus. Second, there is the necessity of studying thread wrapping morphologies, materials and structural characteristics in order to compare them to morphological, material and mathematical characteristics of the khipu they belong to, and to thread wrappings on other khipus. This paper only lays the foundation for looking at khipu typologies from a different angle: Inka style khipus presenting thread wrapping segments need to be brought to light and analysed also in relation to this feature. Their biography as an object needs to be studied through the archival documentation available in order to trace down possible patterns in their origin (regional distribution, archaeological context...). Digitization of these khipus' morphology is also relevant in order to compare them to one another. The supplementary materials listing nine khipus only sets off this process.

By acknowledging the presence of thread wrappings on Inka khipus, new questions can be raised regarding the cultural nature and the semantic trajectories of transmission and change of the Andean thread wrapping technology as well as of the khipu technology as a whole. This, in turn, can allow us to understand the culturally specific needs thread wrapping was answering to and thus shedding new light on the theory of signs regulating Inka khipus too.

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Supplemental Materials

<i>Inventory number</i>	<i>Museum</i>	<i>Khipu knot organization</i>	<i>Cultural attribution</i>	<i>Material of thread wrapping</i>	<i>Area of thread wrapping</i>
RN-0000141369	Museo Amano, Lima	Non-Lockean	Inka		Separating some pendant groups
TR4	MALI, Lima	Lockean	Inka	Cotton	Separating some pendant groups
ML600130	Museo Larco, Lima	Lockean	Inka	Cotton	Looped extremity of the primary cord
VA 67258	Ethnologic Museum of Berlin	Non-lockean	Inka	Cotton	On a woollen purple knob
VA 66842a	Ethnologic Museum of Berlin		Inka	Cotton	Extremity of the primary cord
VA 16138a	Ethnologic Museum of Berlin	Lockean	Inka	Cotton	Knob on an extremity of the primary cord
PAM1326	MUDEC, Milan	Lockean	Inka	Animal fibre	Knotted extremity of the primary cord
M32902	Linden-Museum Stuttgart	Lockean (?)	Inka	Cotton and animal fibre	Separating some pendant groups
PC.WBC.2016.071	Dumbarton Oaks	Lockean	Inka	Cotton	Extremity of the primary cord



Figure 3. RN-0000141369 The Amano Pre-Columbian Textile Museum Lima-Perú. Photo Lucrezia Milillo.

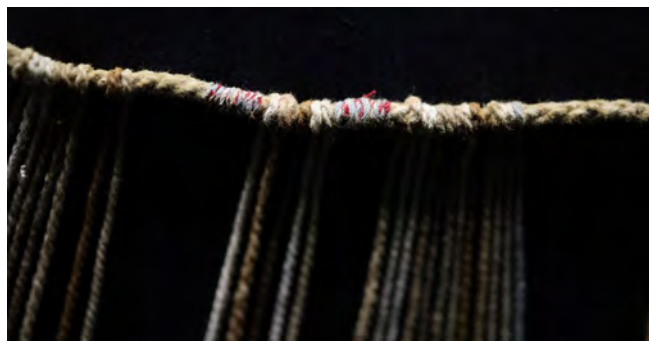


Figure 4. RN-0000141369 The Amano Pre-Columbian Textile Museum Lima-Perú. Photo Lucrezia Milillo.



Figure 5. khipu TR4, Museo de Arte de Lima. Photo Lucrezia Milillo.



Figure 6. Thread wrappings, khipu TR4, Museo de Arte de Lima. Photo Lucrezia Milillo.



Figure 7. Khipu ML600130, Museo Larco, Lima. Photo Lucrezia Milillo.



Figure 8. Thread wrapping, khipu ML600130, Museo Larco, Lima. Photo Lucrezia Milillo.

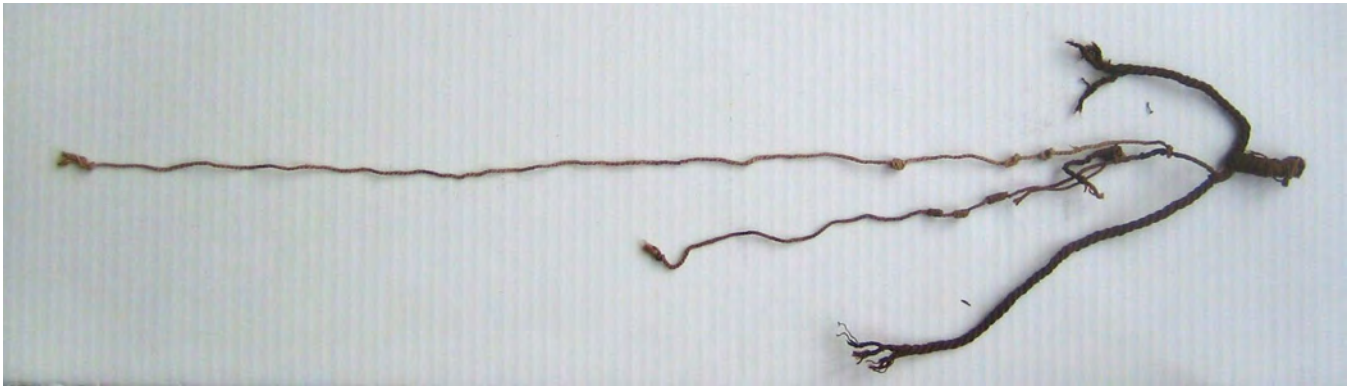


Figure 9. Khipu V A 67258, Ethnologisches Museum, Staatliche Museen zu Berlin.



Figure 10. Thread wrapping, Khipu V A 67258, Ethnologisches Museum, Staatliche Museen zu Berlin. Photo Lucrezia Milillo.



Figure 11. Khipu, V A 66842a, Ethnologisches Museum, Staatliche Museen zu Berlin.

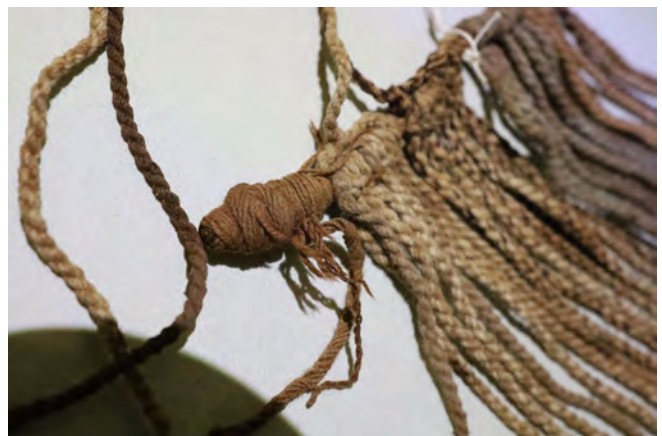


Figure 12. Khipu, V A 66842a, Ethnologisches Museum, Staatliche Museen zu Berlin. Photo Lucrezia Milillo.



Figure 13. Khipu V A 16138a, Ethnologisches Museum, Staatliche Museen zu Berlin.



Figure 14. Thread wrapping, Khipu V A 16138a, Ethnologisches Museum, Staatliche Museen zu Berlin. Photo Lucrezia Milillo.

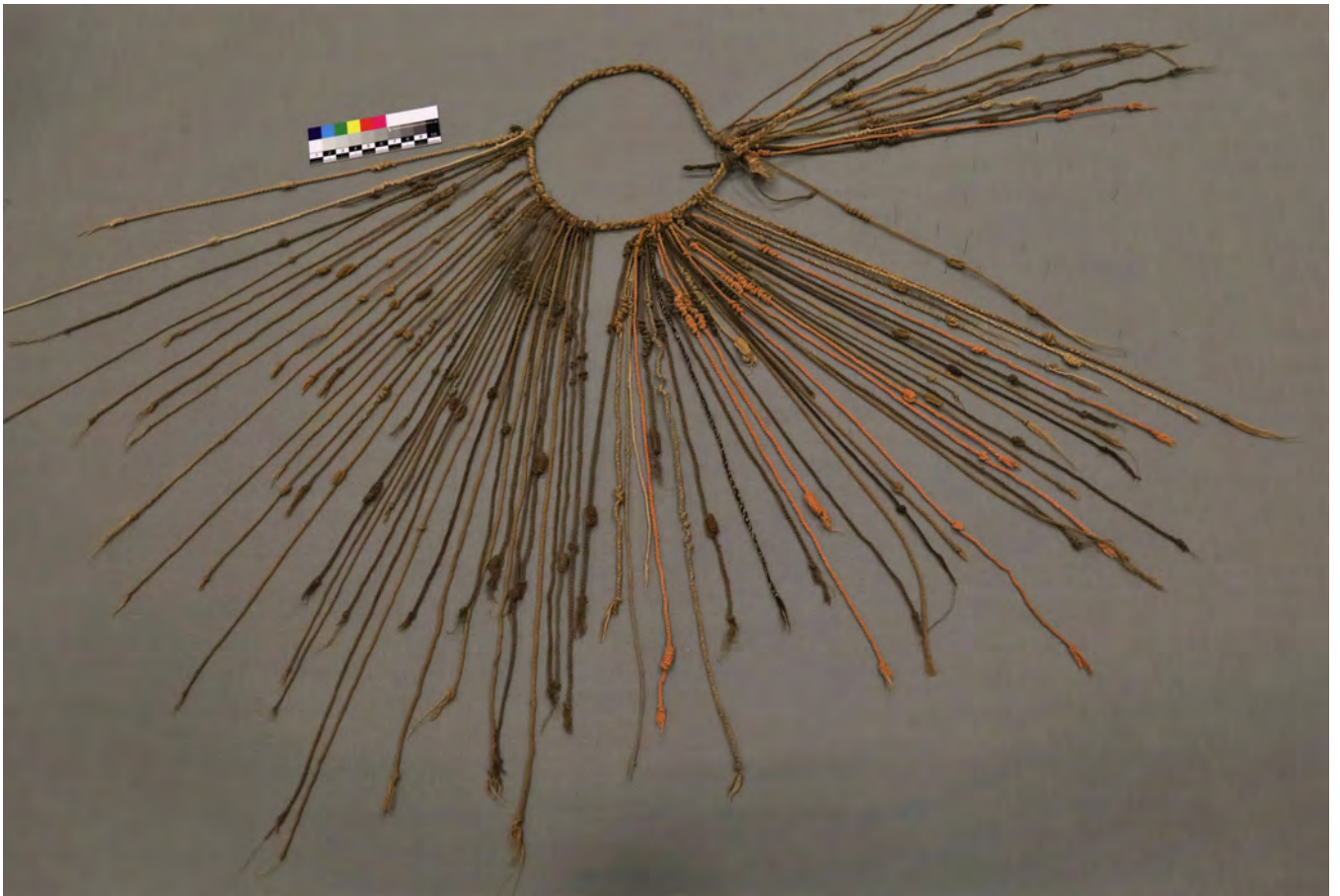


Figure 15. Khipu PAM1326, Museo delle Culture, Milano. Photo Lucrezia Milillo.



Figure 16. Thread wrapping, Khipu PAM1326, Museo delle Culture, Milano. Photo Lucrezia Milillo.



Figure 17. Khipu M32902 © Linden-Museum Stuttgart. Photo courtesy of Manuel Medrano.



Figure 18. Thread wrapping, khipu M32902 © Linden-Museum Stuttgart. Photo courtesy of Manuel Medrano.



Figure 19. Thread wrapping, khipu M32902 © Linden-Museum Stuttgart. Photo courtesy of Manuel Medrano.



Figure 20. Khipu PC.WBC.2016.071, © Dumbarton Oaks, Pre-Columbian Collection, Washington, D.C.



Figure 21. Thread wrapping, Khipu PC.WBC.2016.071, © Dumbarton Oaks, Pre-Columbian Collection, Washington, D.C.